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ALTERNATING AND DIRECT  
CURRENT

# FANS

CABLE ADDRESS:

"ONEPHASE", ST. LOUIS, U. S. A.

CODES

Liebers-A. B. C. (5th Edition)—A. B. C. (6th Edition 5 Letter)—Bentley's (5 Letter)  
Western Union (Universal Edition)—Western Union (5 Letter)—and Private

BULLETIN No. 27

## CENTURY ELECTRIC COMPANY

Main Office and Works, 1827 Pine Street  
ST. LOUIS, MO., U. S. A.



## ALTERNATING AND DIRECT CURRENT

# FANS

### Design and Construction

*Century* fans are manufactured in 9, 12 and 16 inch oscillating and stationary models for both alternating and direct currents. Also 58 inch ceiling and 16 inch ventilating models for alternating current only.

Their design and construction is such that when viewed from the standpoint of appearance, efficiency, the amount of air moved, speed control, strength and durability, they will prove highly satisfactory to all interested in them. Keep-A-Running ability has been the governing factor in their construction.

Each part is constructed of the best material adapted to the particular requirement, and is interchangeable through its having been made to fit standard jigs and gauges.

Each fan, after a substantial period of operation, is carefully tested and a record kept of its performance, and must meet the tests limits we have established as standard before being approved by our inspectors.

The latest addition to the line of *Century* fans is the direct current type, which, it will be found, possesses the same desirable characteristics as the well known alternating current models.



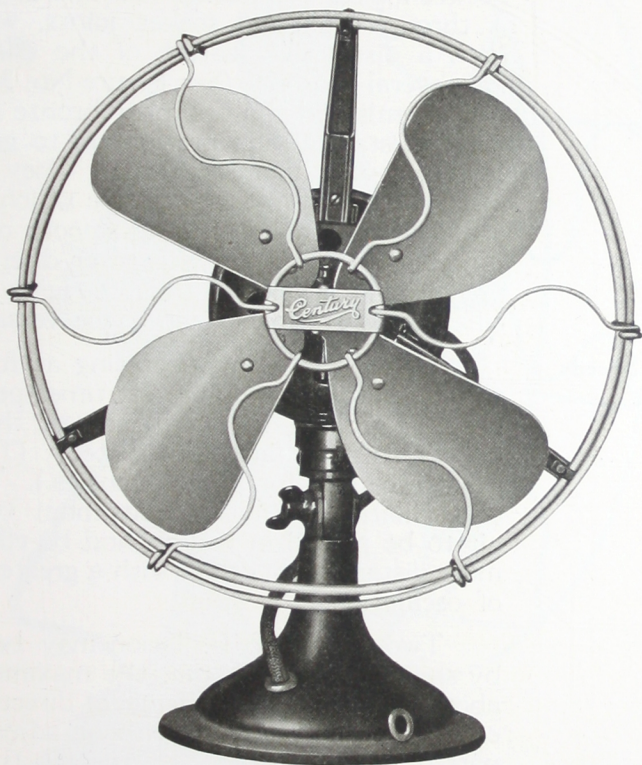


Fig. No. 359  
Illustrating 9 and 12 inch models

IO 89-15803 TLF



## ALTERNATING CURRENT FANS

### Oscillating Fans Specifications

The oscillating fans have an oscillating mechanism which consists of a double worm gear, crank disc and connecting rod. Connection between disc, connecting rod and swivel stud is through ball and socket joints, which has been a distinctive feature of the *Century* Fan for several seasons. (See Figure No. 361.) The steel worms and the phosphor bronze gears are very substantial and are certain to give satisfactory results for many years. They are completely enclosed in a grease case which contains a high grade grease insuring smooth operation. A lever is provided to engage or disengage the oscillating mechanism, thus changing from oscillating to stationary, and vice versa.

### Oscillating Speed

These fans, when operating at full speed, will oscillate from four to six times per minute depending upon the frequency of the circuit for which they are constructed. (The same gears are used for all frequencies.) This rate of oscillation permits a maximum volume of air to be placed in motion and be effective at more distant points than with a greater number of oscillations.

### Range of Oscillation

Two ranges of oscillation may be secured by shifting the crank pin, the maximum being about 90 degrees. A change of direction of oscillation may be made without adjusting any part of the fan, simply by turning the fan on the swivel stud. An escapement device is provided to prevent damage should the fan oscillate into contact with a stationary object. The weight of the fan is carried on a ball bearing which serves to reduce the friction load to a minimum. The fan is so constructed that it may be tilted from a horizontal position within a limited range.



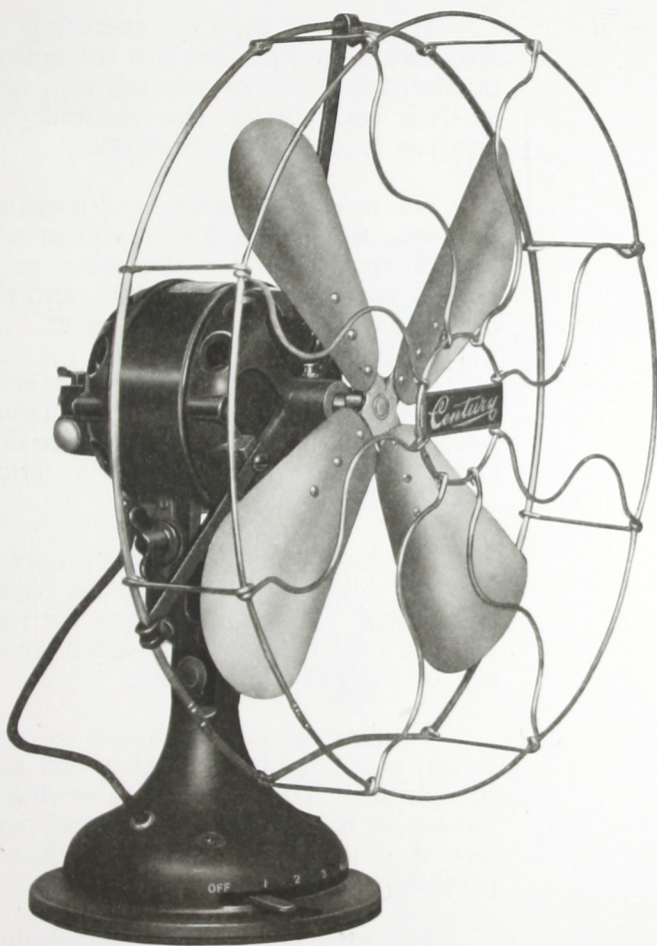


Fig. No. 360

Illustrating the 16 inch Oscillating Models



## ALTERNATING CURRENT FANS

### Construction of Motor

The motors used for operating all *Century* alternating current fans are the split-phase induction type. As no moving wire is employed in their construction the possibility of breakdown is reduced to a minimum.

### Field

The field is constructed of sheet steel laminations. Copper wire with cotton and enamel insulation is used for the windings. This is placed in partially closed slots, and thoroughly impregnated with insulating paint.

### Rotor

The squirrel cage type of rotor is built up of sheet steel laminations mounted upon a shaft which is ground all-over to accurate dimensions, resulting in low friction losses in, and long life to the bearings.

### Bearings

The bearings are made of phosphor bronze and are lubricated from grease cups through wick oilers. Provision is made for replenishing the lubricant by oiling through a spring cap on top of the bearing housing.

### Stand

The base or stand is made in one piece of drawn steel, light in weight, but strong and substantial. The base cover, serving as a protection to the switch and as a support for the fan, is a pressed steel plate, felt covered to protect the furniture.

### Finish

The standard finish of all oscillating and stationary fan bodies and bases is black enamel.



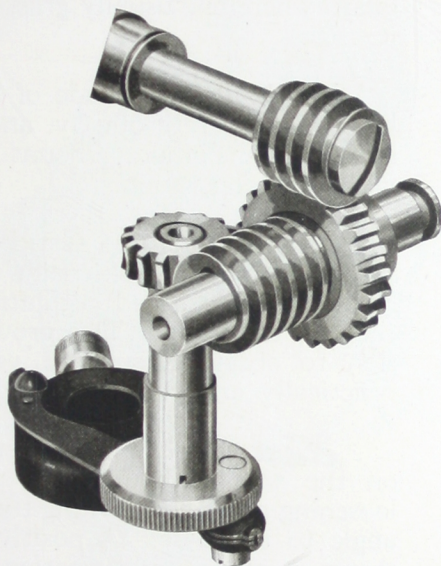


Fig. No. 361

Illustrating in approximately normal size, the  
Oscillating Mechanism, which is packed in  
grease, of 9, 12 and 16 inch models



## ALTERNATING CURRENT FANS

### Guards

The fan blade guards are heavy wire supported in such a way that they can not be easily bent out of shape in handling. Note that one support is provided at the top of the guard where one usually grasps the fan to move it.

### Blades

The blades are made of brass dipped and lacquered, operate quietly, and are adjusted to move the maximum amount of air consistent with quiet operation.

### Speed Regulation

All oscillating and stationary fans are provided with a multiple point switch for speed regulation, the speed regulating coil being located in the stand. This provides ample variation to obtain a suitable volume of air for practically any condition.

### Wall Mounting

*Century* fans can be adjusted for mounting on the wall without extra parts, by simply loosening a nut and turning the motor to a right angle to the base. A positive lock holds the motor at any desired position to which it may be tilted.

### Stationary Fans

The stationary fans are of the same construction as the oscillating type with the exception of the oscillating mechanism which is not included. The same features as to speed regulation, adjustments for wall mounting, etc., are found in the stationary fans as previously described under oscillating fans.



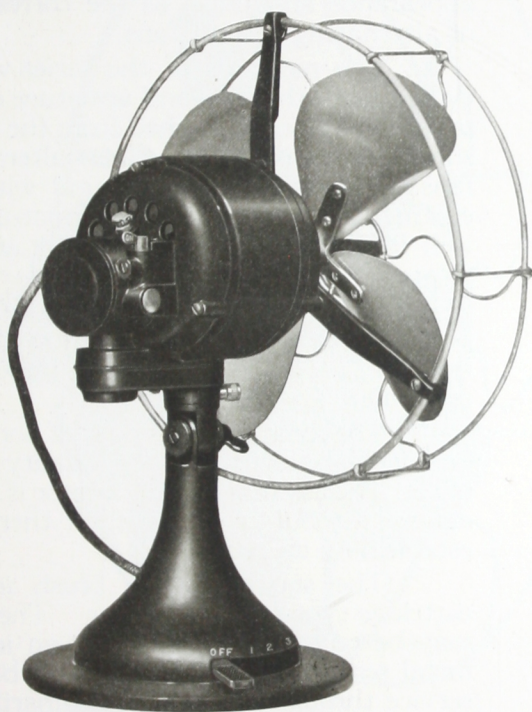


Fig. No. 362

Illustrating the 9 and 12 inch Oscillating models



## DIRECT CURRENT FANS

### Design

*Century* direct current fans are built in 3 sizes, viz: 9, 12 and 16 inch, in both stationary and oscillating types. They have the same general appearance and finish as the corresponding sizes of alternating current fans.

### Motor

The motor is of the series wound bipolar type. Both the field and armature cores are built up of laminations punched from the same grade of sheet steel as is used in *Century* alternating current fans. The field coils are wound with cotton and enamel covered wire. The armature, after being well insulated, is wound with silk and enamel insulated wire.

The frame is entirely enclosed but so proportioned that the heat radiation is sufficient to maintain a low temperature under continuous operation.

### Commutator

The commutator is built of horizontal copper bars insulated with the best quality of soft amber mica. The assembled commutator is pressed firmly against a shoulder on the shaft thereby definitely establishing its position.

### Brushes

The square carbon brush is carried in a cartridge type of brush holder. The carbon brush may be removed by removing an insulated head metal screw, while the brush may be inspected in service through an opening ordinarily covered by a sheet metal lid held in place by two screws.

### Speed Regulation

The speed regulating coil located in the base or stand, consists of a non-corrosive high resistance alloy wire wound on a mica card. All direct current fans have three speeds. The speed reduction of all sizes is approximately 25 to 30% on circuits of normal voltage. The current consumption is slightly less than in the corresponding sizes of alternating current fans while the amount of air moved is approximately 10% more in each case.



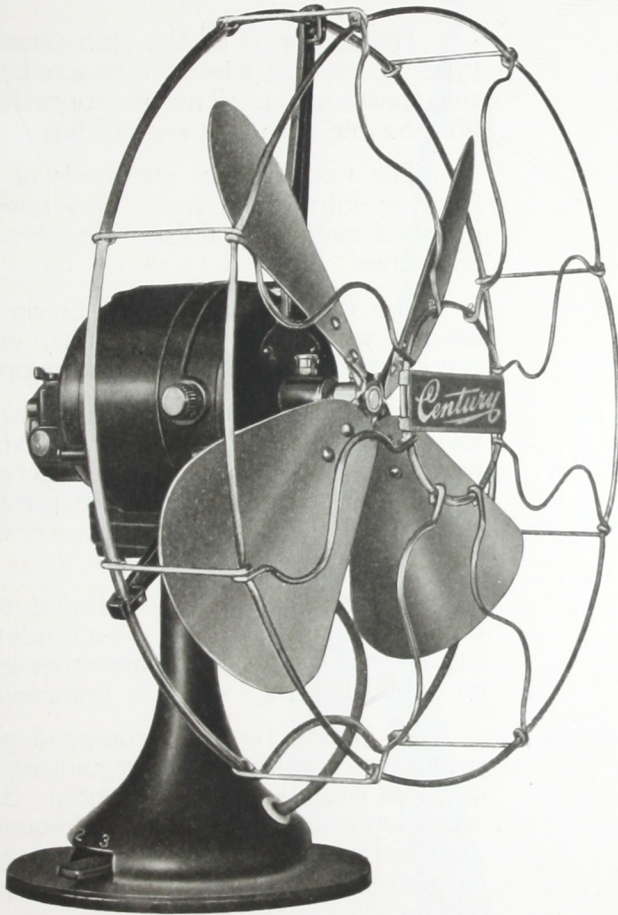


Fig. No. 363

Illustrating the 9 and 12 inch Direct Current models



## ALTERNATING CURRENT CEILING FANS

### Design and Construction

The motor is of the split-phase induction type, no moving wire or contacts being used in the construction. This accounts for the long life possible with this type of fan.

### Blades

The wood blades are made of a carefully selected kiln dried stock and have a highly polished mahogany finish. The blade sweep is 58 inches.

### Finish

The fan motor body is finished in black enamel while the blade shanks, oil cup and canopy are finished in oxidized copper.

### Fixtures

The bottom flange on the oil cup is drilled and tapped with  $\frac{1}{8}$  inch U. S. fixture tap to permit of the installation of electrolier arms, should they be desired. When the fan is shipped, the holes are plugged with flush screw plugs.

### Bearings

The vertical shaft is ground to accurate dimensions so that there is no binding or sticking and the weight of the armature is supported on a ball bearing, which is immersed in oil.

### Speed Regulation

All ceiling fans are equipped with a two speed switch and a speed regulating coil which provides suitable speed variation. Satisfactory operation can be obtained with frequencies varying from five per cent above or below the rated frequency, with a corresponding change of speed.

The speed regulating coil is provided with extra terminals so that some speed variation may be secured on circuits above normal voltage. It is located in the top of the fan where it cannot be easily damaged.



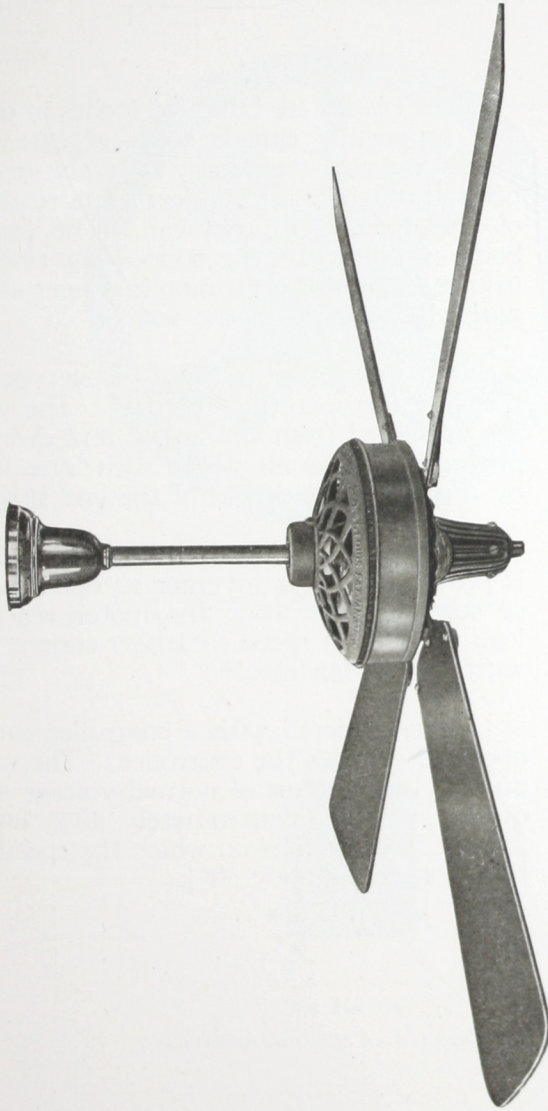


Fig. No. 364  
Illustrating the 58 inch Ceiling Fans



## ALTERNATING CURRENT VENTILATING FANS

### Construction

The blades are brass, 16 inches in diameter. The supporting ring is made of cast iron, 20 inches outside diameter, with six (6) drilled holes through it for supporting it to the edges of the opening in the wall. The fan motor body is bolted to the supporting ring, which insures the motor remaining in proper alignment with the opening in the wall.

### Motor

The motor is of the split-phase type, wound specially for operating this fan. The windings are protected from the grease and dirt usually prevailing in the air where such fans are used, by a metal cover inside of the end bracket.

### Controller

A fan ordered without a speed controller is provided with a governor to open the phase or starting coils when the motor reaches full load speeds. A speed controller cannot be used with such a fan motor.

A fan ordered with a controller cannot be operated without the controller. The speed reduction on a circuit of normal voltage and frequency will be approximately 40% excepting 25 and 30 cycle fans on which the speed reduction is approximately 30%.



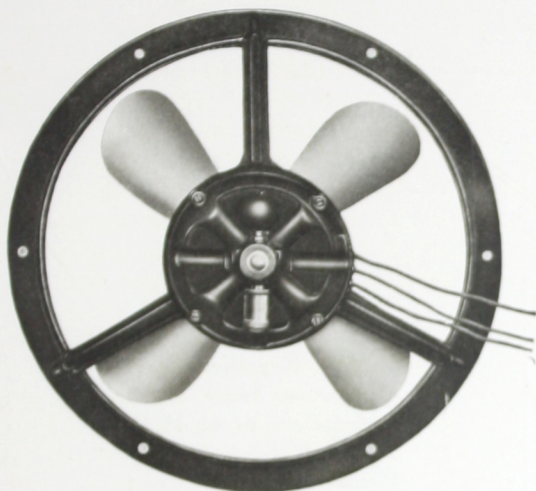


Fig. No. 365

Illustrating 16 inch Ventilating Fans



Fig. No. 366

Illustrating Controller for Ventilating Fans



We Also Manufacture

*Century* Repulsion Start  
Induction Single Phase  
Motors,  $\frac{1}{8}$  to 40 H. P.

*Century* Automatic Start  
Induction Polyphase  
Motors,  $\frac{1}{2}$  to 60 H. P.

*Century* Squirrel Cage  
Induction Polyphase  
Motors,  $\frac{1}{2}$  to 5 H. P.

*"Invincible"* Split Phase  
Motors,  $\frac{1}{8}$  to  $\frac{1}{2}$  H. P.



